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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant: Raman Patel, et al.

Examiner: Nathan M. Nutter

Serial No.: 10/754,045

Group Art Unit: 1711

Filed: 01/08/04

Date: November 16, 2007

For: **TOUGHENED POLYMER COMPOSITIONS**

Mail Stop Appeal Brief-Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**CERTIFICATE OF MAILING**

Sir:

The undersigned hereby certifies that the attached **REPLY BRIEF FOR APPELLANTS UNDER 37 C.F.R. §41.41** was mailed to Mail Stop Appeal Brief-Patents, Commissioner for Patents, Alexandria, VA 22313-1450, with sufficient first-class postage, no special handling, on November 16, 2007 before 5:00 P.M., thereby ensuring that such documents will be in the hands of the U.S. Postal Service by the close of business this day.

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Respectfully submitted,

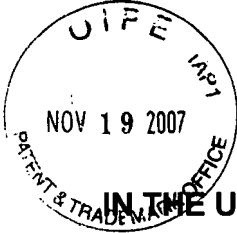
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Reply Brief for Appellants (5 pages)



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**REPLY BRIEF FOR APPELLANTS UNDER 37 C.F.R. §41.41**

Sir,

Please consider this Reply Brief submitted in accordance with 37 C.F.R. § 41.41 in order to address issues and arguments presented in the Examiner's Answer dated September 18, 2007. This Reply Brief is filed within two months from the date of the Examiner's Answer as required. In addition to the arguments presented herewith, Appellants reassert the arguments set forth in the Appeal Brief filed July 9, 2007.

**ARGUMENT**

With respect to the first paragraph set forth in the Response to Argument section of the Examiner's Answer, Appellants' independent claims contain the limitation wherein "the rubber component is present in an amount from about 2 to about 60 parts by weight per 100 parts by weight of the matrix polymer and the thermoplastic polyolefin polymer component". All of said independent claims contain the limitation wherein the matrix polymer is a polyolefin. Thus, Appellants' basis is parts of rubber per 100 parts of polyolefin polymer (both matrix and thermoplastic polyolefin polymers). In Col. 2, lines 32-38, of the '878 reference, Coran teaches "When the quantity of cross-linked CSM rubber, in the absence of plasticizer falls below about 50 parts by weight per 100 parts total weight of polyolefin resin and CSM rubber, a rigid composition having reduced toughness is produced." Accordingly, Coran's basis is parts of rubber per 100 parts by weight of polyolefin and rubber. The Examiner states that the measure of Coran is a different basis

than that calculated by Appellants. Appellants have supplied the basis conversion, that provides an "apples to apples" same basis comparison, which is the noted at most about 37 parts of rubber component per 100 parts by weight of the rubber component and polyolefin, i.e., matrix polymer and thermoplastic polyolefin component. The conversion is arrived at by dividing 60 parts, Appellants greatest claimed amount of rubber component, by the sum of the rubber component 60 parts plus the 100 parts of the matrix polymer and thermoplastic polyolefin polymer. Therefore, 60 divided by (60 plus 100) multiplied by 100 (percent) equals at most about 37.5 parts of the rubber component per 100 parts by weight of the rubber component, matrix polymer and thermoplastic polymer component. Converting Appellants' complete range of about 2 to about 60 parts by weight of rubber component per 100 parts by weight of the matrix polymer and thermoplastic polymer component is equivalent to about 1.9 to about 37.5 parts rubber component per 100 total parts by weight of the rubber component, matrix polymer and thermoplastic polyolefin polymer component. Accordingly, Appellants' converted ratio of rubber to polymer claim limitation falls within the disclosure in Coran '878, see specifically Col. 2, lines 32-38, "When the quantity of cross-linked CSM rubber, in the absence of plasticizer falls below about 50 parts by weight per 100 parts total weight of polyolefin resin and CSM rubber, or when the quantity of polyolefin resin exceeds 50 weight percent of the composition, hard, rigid compositions having reduced toughness are obtained" as acknowledged by the Examiner. The Examiner further states the instant claims do not exclude the use of plasticizers. However, independent claims 1 and 21 clearly claim that the toughened thermoplastic compositions are substantially free of plasticizers, see last two lines of each claim. Accordingly, it is respectfully submitted that the scope and content of the Coran '878 reference teaches away from Appellants' claimed composition including the claimed rubber limitation and the compositions being substantially free of plasticizers, especially in view of the "apples to apples" same basis conversion that has been provided and duly explained.

The Examiner further states that the Coran '878 reference teaches the addition of other thermoplastic olefin resins at Col. 6, lines 28-40. Regardless of the addition of other thermoplastic olefin resins, the Coran '878 statement wherein the quantity of cross-linked CSM rubber, in the absence of plasticizer falls below about 50 parts by weight per 100

parts total weight of polyolefin resin and CSM rubber, a rigid composition having reduced toughness is produced would still be applicable. The composition would always be calculated on the total amount of CSM rubber and polyolefin resin present.

Regarding the Col. 1, lines 55-60 teaching in Coran '878 regarding a range of the CSM rubber, as indicated by the Examiner, the reference is viewed in its entirety. In view of the Col. 2 teaching above, it is respectfully submitted that the Coran '878 reference has a scope and content that requires plasticizer when low amounts of CSM rubber are utilized in order to provide toughness. It is further noted that claims 7-10 contain only up to about 31 parts rubber per 100 total parts by weight of polyolefin resin and rubber, according to the adjusted basis of comparison. Claims 17-20 and 26-30 also cannot be anticipated, nor rendered obvious by the Coran '878 reference by the same reasoning. In view of the limitations present in claims 1 and 21, such compositions are also substantially free of plasticizer and unexpectedly produce toughened compositions.

Regarding the Coran '535 reference, both the Appellants and the Examiner agree that the entirety of the reference is to be considered. Appellants believe that when considered as a whole, the reference teaches away from the claimed invention for the reasons specifically set forth in the Appeal Brief. Regarding extender oil, Col. 12, lines 60-65 of Coran '535 states, "the addition of extender oil ordinarily reduces hardness," and thus would improve impact resistance. It is further stated, "in blends containing high proportions of resin sufficient extender oil must be used so that an adequate combined quantity of rubber and extender oil be present in order to obtain thermoplastic elastomeric vulcanizates."

The Examiner states that the Affidavit concerns establishing motivation of events 28 years ago. Appellants respectfully disagree. Regarding the Coran '535 reference specifically, the obviousness rejection is addressed utilizing the present tense in the Affidavit. Dr. Patel specifically states, "one of ordinary skill in the art would not expect the claimed compositions to produce toughened polymer compositions, as one of ordinary skill in the art believes that adding more oil would soften the composition and thereby improve the impact resistance, whereas the contrary has been found unexpectedly to be true by the Applicants." Likewise, the sections of the Affidavit regarding the recitation of rotational molding are addressed according to the date provided in the Affidavit. Accordingly,

consideration of the Affidavit, with respect to the Coran '535 reference especially, is respectfully requested.

Appellants' arguments regarding the claims are directed to the combination of limitations set forth within each noted claim. As indicated by the citations from the Coran '535 reference set forth in the Appeal Brief and Affidavit, one of ordinary skill in the art would not expect the claimed compositions to produce toughened polymer compositions, i.e., such as having greater impact resistance when compared to either corresponding composition wherein the rubber component is uncured, or the thermoplastic polyolefin component alone or a combination thereof, with the compositions being substantially free of plasticizer and containing the claimed low amounts of oil, as one of ordinary skill in the art believes that adding more oil and/or plasticizer would soften the composition and improve impact resistance, whereas the contrary has been found unexpectedly true by the Appellants. For further example, see Col. 2, lines 12-15 of the Coran '535 reference, where Coran describes, "it is a feature of the invention that oil extended vulcanizates can be prepared having improved strengths." Column 12, lines 60-65 states that the addition of extender oil ordinarily reduces hardness and thus would improve impact resistance. Coran further states that in blends containing high proportions of resin, sufficient extender oil must be used so that an adequate combined quantity of rubber and extender oil be present in order to obtain thermoplastic elastomeric vulcanizates. However, in view of the reference teachings to the contrary, Appellants unexpectedly have created, as claimed, toughened polymer compositions in the absence of the need for such plasticizer and/or extender oils as claimed.

As reiterated by the Supreme Court in KSR International Co. v. Teleflex Inc., 550 U.S. \_\_\_, 82 USPQ2d 1385 (2007), the basic factual inquiries regarding the question of obviousness set forth in Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966), are determining the scope and content of the prior art, ascertaining the differences between the claimed invention and the prior art, and resolving the level of ordinary skill in the pertinent art. Considering both the claim language and the scope and content of the prior art Coran '878 and Coran '535 references, clear differences exist inasmuch as the Coran '878 reference teaches away from Appellants' claimed compositions, including the claimed rubber, the polymer ratio limitation and the composition being

substantially free of plasticizers, and the Coran '535 reference teaches away from compositions having low amounts of rubber, low amounts of extender oil, and being substantially free of plasticizers.

Note that combining known prior art elements is not sufficient to render the claimed invention obvious if the results would not have been predictable to one of ordinary skill in the art, see United States v. Adams, 383 U.S. 39, 51-52, 148 USPQ 479, 483 (1966). Further, KSR, 550 U.S. at \_\_\_, 82 USPQ2d at 1395 states, "When the prior art teaches away from combining certain known elements, discovery of successful means of combining them is more likely to be nonobvious". As detailed by the Appellants, the results achieved by the Appellants would not have been predictable to one of ordinary skill in the art which believes that when generally low amounts of rubber to polymer are present, extender oil and/or plasticizers are required to produce toughened compositions.

Based on the arguments submitted herein as well as in the Appellants Appeal Brief filed July 9, 2007, Appellants submit that Examiner's rejections of record do not establish a prima facie case of obviousness with respect to the pending claims. Appellants, therefore, earnestly solicit the Board to reverse each of the Examiner's rejections under 35 U.S.C. § 103(a).

Respectfully submitted,

HUDAK, SHUNK & FARINE CO. L.P.A.

A handwritten signature in black ink, appearing to read "Daniel J. Hudak, Jr.", with a stylized, cursive script.

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